

## CLAIMS

1. A multicrystalline silicon substrate comprising:  
a substrate of multicrystalline silicon having  
relatively large irregularities formed on a surface thereof  
5 by etching with an alkaline aqueous solution; and  
a multiplicity of relatively fine textures formed by dry  
etching over the relatively large irregularities,  
wherein a ratio  $r$  expressed as  $r=a/b$ , which is the ratio  
between the length  $a$  of a virtual line connecting individual  
10 peaks of the relatively fine textures at a vertical cross  
section thereof and the length  $b$  of a straight line  
connecting the endpoints of the virtual line, is equal to  
or larger than 1 and smaller than 1.1.
- 15 2. The multicrystalline silicon substrate according to  
claim 1, wherein the fine textures have a height and a  
width of  $2\mu\text{m}$  or less, respectively.
3. The multicrystalline silicon substrate according to  
20 claim 1, wherein the fine textures have a height and a  
width of  $1\mu\text{m}$  or less, respectively.
4. The multicrystalline silicon substrate according to  
claim 1, wherein the fine textures have a height-to-width  
25 aspect ratio (height/width) of 2 or less.

5. A process for roughening a surface of a multicrystalline silicon substrate comprising the steps of:

etching a surface of a multicrystalline silicon  
5 substrate with an alkaline aqueous solution for forming relatively large textures having a surface area-to-planar surface area ratio  $R$  of larger than 1 and smaller than 1.1;  
and

a dry etching step for forming a multiplicity of  
10 relatively fine textures over the relatively large irregularities.

6. The process for roughening a surface of a multicrystalline silicon substrate according to claim  
15 5, wherein in the step of forming a multiplicity of relatively fine textures, a ratio  $r$  expressed as  $r=a/b$ , which is the ratio between the length  $a$  of a virtual line connecting individual peaks of the relatively fine textures at a vertical cross section thereof and the  
20 length  $b$  of a straight line connecting the endpoints of the virtual line, is equal to or larger than 1 and smaller than 1.1.